ENSC Focus Track Course Lists – July 31, 2006

Agriculture and the Environment (14 credits):		
Impacts of agriculture on the environment and strategies for minimizing environmental degradation		
Course	**Credits**	**Title**
PSS 162	3	Soil Fertility and Management*
ASCI 122	3	Animals in Society/Animal Welfare
BOT 109	4	Systematics and Phylogeny
BOT 213	3	Plant Communities+
CDAE 102	3	Sustainable Community Development
CDAE 205	3	Rural Communities in Modern Society+
ENVS 173	3	Landscape Natural History
MMG 220	3	Environmental Microbiology
PSS 106	3	Insect Pest Management
PSS 117	4	Plant Pathology
PSS 156	3	Permaculture
PSS 212	3	Ecological Farm Management+
PSS 215	3	Weed/Crop Ecology
PSS 217	3	Ecology and Management of Grazing Systems
PSS 261	3	Soil Morphology Classification and Land Use
PSS 266	4	Soil and Water Chemistry
PSS 268	3	Soil Ecology
PSS 269	3	Soil and Water Pollution and Bioremediation
A maximum of 3 credits of ENSC 195 or 196 can apply towards the 14 credits required in this focus track:		
ENSC 195	1-3	Internship
ENSC 196	1-3	Independent Research

- Course titles ending with a * indicate a course *required* for the focus track.
- Course titles ending with a + indicate a course with prerequisites that are not included among previously-identified courses.

Conservation Biology and Biodiversity (14 credits):		
Endangered species and ecosystems,and strategies for conserving the diversity of Earth's life forms		
Course	**Credits**	**Title**
WFB 286	4	Conservation Biology*
BCOR 101	3	Genetics
BOT 108	4	Morphology and Evolution of Vascular Plants
BOT 213	3	Plant Communities+
FOR 120	3	Forest Ecology
FOR 122	4	Forest Ecosystem Analysis+
FOR/NR 228	2	Ecosystem Ecology+
NR 220	2	Landscape Ecology
WFB 174	3	Principles of Wildlife Management
WFB 271	2	Wetlands Wildlife+
WFB 272	1	Wetlands Wildlife Laboratory+
WFB 273	3	Terrestrial Wildlife+
WFB 274	1	Terrestrial Wildlife Laboratory+
Students must include one and only one of the following in their required 14 credits:		
BOT 109	4	Systematics and Phylogeny
FOR 21	4	Dendrology
WFB 130	3	Ornithology
WFB 232	3	Ichthyology
A maximum of 3 credits of ENSC 195 or 196 can apply towards the 14 credits required in this focus track:		
ENSC 195	1-3	Internship
ENSC 196	1-3	Independent Research

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Ecological Design (14 credits):		
Use of ecological systems to improve environmental quality		
Course	**Credits**	**Title**
NR 288	3	Ecological Design and Living Technologies*
CDAE 102	3	Sustainable Community Development+
CDAE 170	3	Solar Strategies for Building Construction+
CDAE 191	3	Applied Ecological Economics+
CDAE 195	3	Community Design and Planning: Renewable Energy Workshop
ENVS 177	3	Introduction to Landscape Restoration
MMG 220	3	Environmental Microbiology
NR 250	4	Limnology
NR 285	3	Ecological Design Studio
PSS 127	3	Greenhouse Operation and Management
PSS 131	3	Landscape Design I
PSS 132	3	Landscape Design II
PSS 154	3	Composting Ecology and Management
PSS 156	3	Permaculture
PSS 212	3	Ecological Farm Management
PSS 269	3	Soil and Water Pollution and Bioremediation
RM 230	3	Ecotourism
A maximum of 3 credits of ENSC 195 or 196 can apply towards the 14 credits required in this focus track:		
ENSC 195	1-3	Internship
ENSC 196	1-3	Independent Research

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Environmental Analysis and Assessment (14 credits):		
Techniques for measuring environmental impacts and managing environmental data		
Course	**Credits**	**Title**
BOT 223	3	Foundations of Field Science+
CE 154	2	Environmental Analytical Practices
CE 248	3	Hazardous Waste Management Engineering
CE 254	4	Environmental Quantitative Analysis+
ENSC 285	3	Hazardous Materials Safety
FOR/NR 146	3	Remote Sensing of Natural Resources+
GEOL 235	3	Geochemistry of Natural Waters
MMG 220	3	Environmental Microbiology+
NR 143	3	Introduction to Geographic Information Systems+
PSS 261	3	Soil Morphology Classification and Land Use
PSS 264	4	Soil Chemistry
Students must include at least one of the following in their required 14 credits:		
CE 150	3	Environmental Engineering+
CHEM 121	4	Quantitative Analysis
A maximum of 3 credits of ENSC 195 or 196 can apply towards the 14 credits required in this focus track:		
ENSC 195	1-3	Internship
ENSC 196	1-3	Independent Research

- Course titles ending with a * indicate a course *required* for the focus track.
- Course titles ending with a **+** indicate a course with prerequisites that are not included among previously-identified courses.

Environmental Biology (16 credits):		
Ecological and molecular analysis of endangered populations, phenomena affecting biological diversity, the interrelationship of organisms and their environments, and conservation genetics		
Course	**Credits**	**Title**
BIOL 203	3	Population Ecology
BIOL 208	4	Morphology and Evolution of Insects
BIOL 209	4	Field Zoology
BIOL 225	3	Physiological Ecology+
BIOL 246	3 or 4	Ecological Parasitology
BIOL 254	4	Population Genetics
BIOL 264	3	Community Ecology
BIOL 268	3 or 4	Medical Entomology
BIOL 269	3	Plant-Animal Interactions
BIOL 270	3	Speciation and Phylogeny+
BIOL 295	3	Conservation Biology
WFB 279	3	Marine Ecology+
NR 250 or NR 280	4	Limnology or Stream Ecology
BIOL 197/198	3	Research
NOTE: *BCOR 102 is a requirement for the Environmental Biology focus track*		

Environmental Chemistry (17 credits):		
Analytical methods for measuring and monitoring air, ground, and water pollutants		
Course	Credits	Title
CHEM 121	4	Quantitative Analysis*
CHEM 221	3	Instrumental Analysis*
CHEM 291	4	Undergraduate Research*
CHEM 131	3	Inorganic Chemistry
CHEM 160	3	Physical Chemistry for Biological Science Students
CHEM 161 or 162	3	Physical Chemistry I or II
CHEM 205	3	Biochemistry
NOTE: *Two semesters of Organic Chemistry* (*CHEM 141 and 142) (Organic Chem) and two semesters of Physics (PHYS 11/12 or 31/42) are required for the Environmental Chemistry focus track*		

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- Course titles ending with a + indicate a course with prerequisites that are not included among previously-identified courses.

Environmental Geology (16 credits):		
Earth science, geomorphology, and the analysis of ground water		
Course	**Credits**	**Title**
GEOL 062	4	Earth, Environments and Life Through Time*
GEOL 116	3	Glacial Geology
GEOL 233	3	Environmental Isotope Geochemistry
GEOL 234	3	Global Biogeochemical Cycles
GEOL 235	3	Geochemistry of Natural Waters
GEOL 255	4	Geohydrology
GEOL 197/198	1-4	Research
Students must include one and only one of the following in their required 16 credits:		
GEOL 101	4	Field Geology
GEOL 151/GEOG 144	4	Geomorphology
GEOL 153	4	Stratigraphy and Sedimentary Petrology+
NOTE: *GEOL 055 and GEOL 102 are required for the Environmental Geology focus track*		

Environmental Resources (14 credits):		
Environmental processes in air, soil, and water		
Course	**Credits**	**Title**
GEOG 143	3	Climatology
GEOL 101	4	Field Geology+
GEOL 151	4	Geomorphology+
GEOL 234	3	Global Biogeochemical Cycles
NR 102	3	Water as a Natural Resource
NR 220	2	Landscape Ecology
NR 245	2	Advanced Spatial Methods+
NR 288	3	Ecological Design and Living Technologies
PSS 261	3	Soil Morphology Classification and Land Use
Students must include at least one of the following in their required 14 credits:		
FOR/NR 146	3	Remote Sensing of Natural Resources
NR 143	3	Introduction to Geographic Information Systems
A maximum of 3 credits of ENSC 195 or 196 can apply towards the 14 credits required in this focus track:		
ENSC 195	1-3	Internship
ENSC 196	1-3	Independent Research

- Course titles ending with a * indicate a course *required* for the focus track.
- Course titles ending with a + indicate a course with prerequisites that are not included among previously-identified courses.

Water Resources (14 credits):		
Global water supply and human impacts on surface waters		
Course	**Credits**	**Title**
NR 102	3	Water as a Natural Resource
ENSC/NR 222	3	Pollution Ecology
GEOG 145	3	Geography of Water
GEOG 146	3	Watershed Ecosystems: North America
GEOL 235	3	Geochemistry of Natural Waters
GEOL 255	4	Geohydrology
NR 250	4	Limnology
NR 260	3	Wetlands Ecology and Management
NR 261	1	Wetlands Ecology Laboratory
NR 270	3	Toxic and Hazardous Substances in Surface Waters
NR 280	3	Stream Ecology
PSS 269	3	Soil and Water Pollution and Bioremediation
WFB 279	3	Marine Ecology
A maximum of 3 credits of ENSC 195 or 196 can apply towards the 14 credits required in this focus track:		
ENSC 195	1-3	Internship
ENSC 196	1-3	Independent Research

- Course titles ending with a * indicate a course *required* for the focus track.
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